United States Environmental Protection Agency | Office of Research and Development Washington, DC 20460 | June 12, 2000

Information Sheet 4

Dioxin: *Summary of Major EPA Control Efforts*

OVERVIEW: EPA has pursued the control and management of dioxin through each of its major program areas; collectively, these actions place strict regulatory controls on all of the major well-defined industrial sources of dioxin. EPA is also in the process of completing a comprehensive reassessment of the scientific consensus on dioxin, including: its sources; its fate and transport; levels of human exposure; and its toxic effects on humans and other animals. Using this emerging scientific understanding, EPA is in the process of reviewing its dioxin control efforts to determine if, collectively, they adequately address dioxin risks, and to determine if redirected or additional action is needed. The result of this multi-program dioxin review will be a draft EPA Cross-Media Dioxin Strategy (see Fact Sheet 5) to be released concurrent with the final EPA dioxin reassessment scheduled for completion by the end of 2000.

SPECIFIC PROGRAM ACTIONS:

Releases to Air ➜ The incineration of municipal and medical waste have historically been the two largest industrial categories of dioxin releases to the environment. Over the past decade, emissions from these sources have been significantly reduced as a result of federal and state attention. Additional emission reductions are taking place as a result of new, stringent regulatory requirements promulgated by EPA under authority of the Clean Air Act (CAA) and its amendments. The CAA requires EPA to set emissions limits for dioxins and other hazardous air pollutants based on "maximum achievable control technology" (MACT). EPA regulations promulgated in 1995 for municipal waste combustors and 1997 for medical waste incinerators should result in a greater than 95% reduction in dioxin emissions from these two source categories. Under the combined authorities of the CAA and the Resource Conservation and Recovery Act (RCRA), EPA has recently regulated dioxin emissions from facilities that burn hazardous waste. These include commercial hazardous waste incinerators, some cement kilns, and some lightweight aggregate kilns. With the completion of these rules, the major categories of commercial and municipal waste combustion are under direct regulation for their dioxin emissions.

Releases to Water ➜ Dioxin releases to water are managed through a combination of risk-based and technology-based tools established under the Clean Water Act (CWA). Using authority of the CWA, EPA published in 1984 ambient water quality criteria for 2,3,7,8-tetrachlorodibenzo-*p*-dioxin (TCDD). Ambient water quality criteria serve as EPA guidance for states in establishing and adopting their own ambient water quality standards. These state standards set a limit on the maximum pollutant concentration allowed for surface waters anywhere within that state and are implemented through discharge limitations contained in National Pollutant Discharge Elimination System (NPDES) permits.

In 1993 EPA proposed integrated rules for the pulp and paper industry which included an effluent guideline for dioxin. Effluent guidelines establish limits on facility effluents concentrations based upon application of best available control technology as defined by the CWA. Pulp and paper effluent guidelines were promulgated in 1998 and will reduce this industry's dioxin discharges at least 96%. Pulp and paper facilities that used elemental chlorine bleaching processes were the largest known industrial dischargers of dioxins into water. The technology-based effluent guidelines are implemented under the NPDES program along with health-based, state ambient water quality standards. Under the NPDES each facility must meet the more stringent of these separate performance requirements placed upon it.

To maintain the quality of public drinking water, EPA promulgated in 1992 a maximum contaminant level goal (MCLG, a non-enforceable, voluntary health goal) of zero, and a maximum contaminant level (MCL) of $3x10^{-8}$ mg/l for TCDD under the Safe Drinking Water Act (SDWA).

In addition to these direct regulatory actions under the CWA and SDWA, EPA is working with the States and the Army Corps of Engineers to manage the dredging and disposal of dioxin-contaminated sediments.

Contamination of Land ➜ Clean up of dioxin-contaminated lands is an important part of the EPA Superfund and RCRA Corrective Action programs. There are dozens of Superfund sites around the country in which dioxin is one of the chemicals of concern. Times Beach, Missouri and Love Canal, New York are the best-known examples, both of which have now been cleaned up. To prevent future problems like these, EPA has developed, under RCRA authority, Hazardous Waste Identification and Disposal Rules. These rules identify and strictly limit the disposal options for wastes formally designated as dioxin containing waste. Dioxin can also be found in low concentrations in wastes applied to the land as fertilizers or soil amendments. These materials include waste water treatment sludge from pulp and paper plants, sludge from publicly owned waste water treatment facilities and dust from activities at cement plants.

Under authority of the Toxic Substance Control Act (TSCA), EPA proposed rules to restrict the use of dioxin-contaminated pulp and paper sludge. The subsequent promulgation (1998) of the pulp and paper effluent guidelines should effectively reduce dioxin concentration in this sludge to such an extent that promulgation of the TSCA sludge rule is no longer needed. In the interim the paper industry has participated in a voluntary program to limit dioxin concentration to land-applied pulp and paper sludge. During 1999 EPA proposed regulations limiting the dioxin content of cement kiln dust from cement plants and sludge from publicly owned sewage treatment facilities when these by-product materials are used as soil additives.

Contaminated Products ➜ Dioxin can exist as a trace contaminant in certain industrial chemical products. Authorities under the Federal Insecticide Fungicide and Rodenticide Act (FIFRA), and under TSCA, can be used to control or eliminate the use of such chemicals. The registration of the herbicide 2,4,5-T was canceled because of concern for dioxin. Similarly, most of the uses of the wood preservative pentachlorophenol have been eliminated, in part because of concern for dioxin. The Toxic Substance Program, through voluntary industry agreements, has restricted the levels of dioxin found in the industrial chemical chloranil. Chloranil is used in the manufacture of certain pigments and tires. Additionally, the TSCA New Chemicals Program, in cooperation with industry, has effectively prevented the manufacture of any new chemicals that are significantly contaminated with dioxin.

EPA, the Food and Drug Administration, and the Consumer Product Safety Commission have jointly conducted a comprehensive examination of dioxin risks associated with paper and paper products. This review has included food contact papers such as coffee filters and food packaging, medical products devices such as tampons and surgical dressings, and consumer products like disposable diapers and writing paper. The three agencies have concluded that none of these products poses a significant risk from dioxin exposure.

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